

# Society for Ecological Restoration

## Guidelines for Developing and Managing Ecological Restoration Projects

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“The mission of every ecological restoration project is to reestablish a functional ecosystem of a designated type that contains sufficient biodiversity to continue its maturation by natural processes and to evolve over longer time spans in response to changing environmental conditions.”

# Restoration and Biodiversity:

- Species richness
- Community composition

(Assure adequate species composition and species abundance to allow development of community.)

- Physical habitat to sustain the species

If restoration cannot be fully achieved, project should be re-designed as a "rehabilitation."

"Once a project site is restored, it may require periodic management, as do many other natural areas, to maintain ecosystem health in response to continuing human-mediated impacts."



# Select Restoration Options

- Repair of a damaged ecosystem – return site to historic or preexisting condition
- Creation of a new ecosystem of the same kind to replace one that was entirely removed (e.g., CERCLA wetland mitigation, brownfields)
- Creation of a replacement ecosystem where an altered environment can no longer support previously occurring type of regional ecosystem (e.g., solid waste disposal site)

# Conceptual Planning

- Identify project site location and boundaries
- Identify the need for restoration
- Identify the kind of ecosystem to be restored and type of restoration project
- Identify restoration goals, if any, that pertain to social and cultural values.
- Identify physical site conditions in need of repair

# Conceptual Planning (cont.)

- Identify stressor in need of regulation or re-initiation (or understanding)
- Identify present and future landscape restrictions
- Identify biotic interventions that are needed (e.g., reintroduction of characteristic species of plants and animals, removal or control of nuisance and exotic species)



# Conceptual Planning (Project Management Concerns)

- Identify funding sources
- Identify labor sources and material needs
- Identify biotic resource needs
- Identify need for permits
- Identify legal constraints (permit specs, deed restrictions, etc.)
- Identify project duration
- Identify strategies for long-term protection and management

# Preliminary Tasks

- Appoint restoration ecologist
- Appoint restoration team
- Budget
- Preliminary Documentation and monitoring
- **Gather baseline ecological information and conceptualize a reference ecosystem from which the restoration will be modeled and evaluated.**

# Preliminary Tasks (cont.)

- Gather pertinent ecological information for key species
- Conduct investigations as needed to assess the effectiveness of restoration methods (novel and unusual methods)
- Decide if ecosystem goals are realistic
- Prepare a list of objectives designed to achieve restoration goals (explicit, measurable tasks / actions)

# Preliminary Tasks (cont.)

- Secure permits
- Establish liaisons
- Arrange for public participation
- Install roads and infrastructure needed to facilitate project implementation
- Engage and train personnel

# Installation Planning

- Describe how each objective will be attained
- State how much can be accomplished passively (i.e., letting natural processes take control)
- Prepare performance standards and monitoring protocols to measure the attainment for each objective



# Installation Planning (cont.)

- Schedule the tasks
- Procure equipment, supplies, and biotic resources
- **Prepare budget for installation tasks, maintenance events, and contingencies**

# Installation Tasks

- Mark boundaries and secure the project area
- Install monitoring features (e.g., staff gauges, piezometers, etc.)
- Implement objectives

# Post-Installation Tasks

- Protect the site against vandals and herbivory
- Maintenance
- Reconnoiter the site regularly to identify needs for mid-course corrections
- Perform monitoring to document the attainment of performance standards
- Implement adaptive management procedures as needed

# Evaluation

- Assess monitoring data
- Describe aspects of the restored ecosystem that are not covered by monitoring data
- Determine if project goals were met
- Publish an account of the project (allow others to learn from your experiences)